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DIV. OF OIL, GAS & MINING

November 16, 2015

Paul B. Baker, Mining Program Manager
State of Utah, Div. of Oil Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114

RE: Updates to the Sage Canyon Mine, M/049//0071 NOI

Dear Mr. Baker,

Per your request, I have revised the NOI with the revisions you requested in your Oct. 20, 2015 letter (see attached). However, be advised that Geneva Rock Products, Inc. is mining sand and gravel, which is considered a surface right not a mineral right, so SITLA is not entitled to any compensation for aggregates removed.

Also, the grading plan presented in Figure 4 is what was approved by Lehi City, so I have modified section R647-110 to reflect the final slope of 57.14%, or approximately 1.7h:1V. But your 3H:1V directive does not apply to this project.

Sincerely,

Brent R. Sumsion
Property and Environmental Manager

Notice of Intention
To Begin a Large Mining Operation



Geneva Rock Products, Inc.
Sage Canyon Mass Excavation
DOGM NO. M/049/0071

Submitted by:

Geneva Rock Products, Inc.

1565 W. 400N.

Orem, UT 84057

To:

Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

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Geneva Rock Products – Sage Canyon – NOI

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R647-4. Large Mining Operations

R647-4-101. Filing Requirements and Review Procedures

This NOI is submitted to the Utah Division of Oil, Gas and Mining (DOGM) in compliance with part R647-4 of the Utah Minerals Reclamation program by Geneva Rock Products, Inc.

The proposed mass grading operation is located in Utah County, Utah, on a 166-acre parcel owned by Mountain Cove Investments II, LLC (Mountain Cove). The site has been permitted by Lehi City for the development of a residential subdivision. A site grading plan has been developed by Mountain Cove and it has been accepted and approved for construction by Lehi City (see Appendix D). The proposed site grading plan is located in portions of Sections 13 and 24, of T.4S, R.1W., and Sections 18 and 19, T.4 S., R. 1 E., SLBM.

R647-4-102. Duration of the Notice of Intention

It is understood that, when approved, this NOI, including any subsequently approved amendments or revisions, remains in effect for the life of the excavation. However, Geneva acknowledges that the Division of Oil, Gas, and Mining (DOGM) may review the permit and require updated information and modifications when necessary.

R647-4-103. Notice of Intention to Begin Large Mining Operations

Geneva's NOI addresses the requirement of the rules listed in this section as follows:

- 104. Operator(s), Surface and Mineral Owner(s)
- 105. Maps, Drawings, and Photographs
- 106. Operation Plan
- 108. Hole plugging Requirements
- 109. Impact Assessment
- 110. Reclamation Plan
- 112. Variance
- 113. Surety

R647-4-104. Operator, Surface and Mineral Owners

1. Name: Sage Canyon Mass Grading Project
2. Operator: Geneva Rock Products, Inc.
P.O. Box 1955
Orem, Utah 84059

Phone: 801-802-6900
Fax: 801-802-6930
Email: <http://www.genevarock.com/>

Type of Business: Corporation
Utah Business Entity No.: 570716-0412
Local Business License No.: 639
Issued by: Utah County

Registered Utah Agent: James D. Golding
P.O. Box 1955
Orem, UT 84059
Phone: 801-765-7800
Fax: 801-765-7830
Email: jgolding@genevarock.com

3. Permanent Address: Geneva Rock Products, Inc.
1565 West 400 North
Orem, UT 84057
Phone: 801-765-7800
Fax: 801-765-7830
Email: <http://www.genevarock.com/>

4. Contact Person for Permitting, Surety, Notices:
Brent Sumsion
Geneva Rock Products, Inc.
P.O. Box 1955
Orem, Utah 84059
Phone: 801-802-6900
Fax: 801-802-6930
Email: bsumsion@clydeinc.com

5. Location of Operation: Sections 13,18,19,24 of T4S, R1W, SLBM
6. Ownership of Land Surface: Perry Homes
17 East Winchester St., Ste. 200
Murray, Utah 84107
7. Owners of Record of Minerals: Of the E1/2 of the NE1/4, S.24, T.4S. R.1W., SLB&M
mineral rights belong to: Utah State Institutional Trust Lands
675 East 300 West
Salt Lake City, Utah 84115
8. BLM Lease or Project File Numbers:
None
9. Adjacent Land Owners: Fox Ridge Investments
3940 N. Traverse Mountain Blvd.
Lehi, Utah 84043
- Geneva Rock Products, Inc.
P.O. Box 538
Orem, Utah 84059
- Lehi City Corporation
153 North 100 East
Lehi, Utah 84043
10. Have the land, mineral, and adjacent owners been notified in writing?
Yes, however sand and gravel is a surface right, not mineral.
11. Does Permittee/Operator have a legal right to enter and conduct mining operations on the land covered by this notice? Yes.

R647-4-105. Maps, Drawings, and Photographs

Maps, drawings, and photographs are provided as requested on Form MR-LMO. The base map Checklist is referenced below by letters and parentheses (a,b,c,d,or e) that represent which of the bullet items is addressed on each map.

105.1. Base Maps: Figures 1 and 2

Figure 1 Base and Mine Location Map and shows the mine area and surroundings and is printed at a scale of 1"=1000'. It shows streams, springs, water bodies, road, building, topography as required in (B). It shows previously disturbed areas and differentiates between "disturbed bonded areas" and those areas that are disturbed but are not the reclamation and/or bonding responsibility of Geneva as required in (d) There are no known underground workings within the proposed permit area as suggested in (d) of Form MR-LMO.

Figure 2 Land Ownership Map is printed at a scale of 1"=2400' and shows the property boundaries, surface ownership of the mine and adjacent lands, and access routes.

105.2. Surface facilities maps: Figures 3 and 4

Figure 3: Existing surface facilities survey, is printed at a scale of 1"=120' and shows existing surface facilities, ditches, and fences that pass through or near the lands to be affected. There are no test borings, pits, or boreholes. The only utility on the site is a below ground power line running up the west face of Radio Tower Mountain along the R/W fence to the radio towers. Both the towers and power supply line will likely be relocated as part of this excavation.

Figure 4: Mine Plan Map, is printed at a scale of 1"=400' and shows drainage control structures, topsoil storage areas. There is no overburden or waste rock, thus no storage areas are shown. No waste water is generated in this development, therefore no discharge areas are shown. Storm water is impounded in a retention pond near the entrance of the quarry. The phasing or progression of the mass grading is shown on this map.

105.3. Reclamation Treatments: Figure 5

Figure 5 is a Reclamation Treatments map. This map is printed at a scale of 1"=400'. It shows details about reclamation treatment areas, including what disturbance, such as highwalls, topsoil stockpiles and roads, will be reclaimed. A border outlining the extent of the area to be reclaimed vs. the affected area is shown. While no topsoil will be spread on the highwalls because they are too steep to revegetate, where possible the benches will be covered with topsoil and re-seeded.

All highwalls will be left at a benched 1H:1V slope or less. These areas are shown on the map. All floor slopes will be 2H:1V or less.

104.4. Additional Maps:

Figure 6 shows cross-sections of the reclaimed pit.

Figure 7 is a Utah Division of Water Rights map showing area water rights.

Figure 8 is a soils map.

Figure 9 is a Geology map.

R647-4-106: Operation Plan

106.1. Mineral to be Mined

The Sage Canyon excavation will produce bank run sand and gravel and crushed and/or screened aggregate for construction materials including concrete and asphalt.

106.2. Type of operation to be conducted

Geneva Rock Products, Inc. (Geneva) primarily extracts aggregate rock for use as subbase, road base, landscape rock, and other construction products. The projected future use of the aggregate will also include concrete and asphalt production.

Current land features and conditions are shown in the color photographs in **Appendix A** and on maps in **Figures 1** through **4**

Grading Operation

Geneva will remove materials from the active mine area by drilling, blasting, and dozing methods. New disturbance occurs at the top and sides of the hill slope. The hill slope will be developed in phases, shown in order of development on **Figure 4**. Each numbered area contains enough material to last for roughly 5 to 10 years. Excavation may extend into the proceeding area prior to completely excavating out the previous area in order to maximize safety, rock quality, and production needs.

Rock is removed by drilling and blasting to release a "lift" of rock approximately 50 feet deep and up to two acres in size. Extraction of this loosened rock occurs by sequentially working downward through the exposed rock. When all blasted rock is removed from the first lift, another blast is set to free this lower lift of rock for removal and processing. Rock is removed from the working face or feed zone; with a loader and either placed in dump trucks or dumped into a feeder that meters material onto an overland conveyor that takes the material into

Geneva's Point of the Mountain Quarry where the material is processed into concrete and asphalt aggregate.

Crushing Operation

A jaw crusher may be used if the material becomes more solid and less fractured as the excavation progress downward. The material will be conveyed from the grizzly feeder or jaw crusher by overland conveyor into the Geneva Point of the Mountain Quarry for further processing. No other crushing equipment or facilities will be located on this site.

Blasting Practices

Blasting will be used in the excavation process at the Sage Canyon Mass Grading project. Blasting is not conducted by Geneva, but is subcontracted out to a qualified company trained in blasting design and practices.

The grading operation will conduct blasting up to 50 times per year. Blasting rounds include 25 ounce down-hole primers, detonator cords, and Ammonium Nitrate-Fuel Oil (ANFO) pellets. Typical blasting design is 50 to 100 holes drilled 50-100 feet deep. It is estimated that each hole will be set on a 13ft. X 13 ft. grid.

Before blasting occurs, the tower sounds a warning siren to alert all personnel of impending blast; at which time all personnel and equipment are removed from grading area. The siren is then sounded again and the blaster turns on his emergency flashing lights. The blast is then detonated. No one enters the blasting zone until the blaster gives an all-clear whistle.

Concurrent Reclamation

No reclamation will take place within the first 10-year block. Increased production will force utilization of all additional excavated acres for staging, sorting, or processing. Reclamation will take place once the quarry is mined out. Reclamation is discussed in Section 110 below.

106.3. Estimated Acreage

Approximately 137 acres will be disturbed over the life of the excavation. This area of disturbance includes all access roads, storage piles, processing areas, and affected area.

Table 1: Areas to be affected during the next 5- years, and over life of the Excavation

Area	Total Affected Acreage	Disturbance largely within Already Affected Lands / Notes	Total Cubic Yards of Topsoil Salvaged
Existing Mine Disturbance	0	Pre-existing disturbance	0
Areas of new mining disturbance Phase 1&2	115	To be disturbed in 1-5 years	92,767
Overburden and waste dumps	0	All mined materials are processed and sold	0
Ore and product stockpiles	0	20 acres – within existing disturbance	0
Access/haul roads and topsoil stockpiles located in existing pit	0	The present acreage of haul roads in the pit will be maintained	0
Tailings Disposal	0	No tailings are created	0
Sediment Control Ponds	1	Run-off is contained in bermed work area or catch basins within the disturbance	0
Total 10-year disturbance	116	<i>Change</i>	92,767
Phase 3	21	To be disturbed during 5-22 years	17,747
Total disturbance – life of mine	137		110,514

106.4. Nature of material, including waste rock/overburden, and estimated tonnage

Ore

The annual amount of excavated material generated is greatly dependent on quarterly demand. Current Utah Department of Transportation projects improving east/west access to I-15 are either slated for bid this year or already under construction that will require large volumes of aggregate products. The I-15 corridor expansion through Utah County will be started in spring of 2010. This will require even larger volumes of aggregate products. We project the average annual production for the next five years to average 2,000,000 tons (1,250,000 CY) per year.

Historic Mining and Disturbance Area Summary

Mining for construction aggregates has occurred at the Point of the Mountain since the 1950's. Both Geneva Rock Products and Staker/Parson have permanently established pits to the west and north of this proposed excavation. No historic mining has occurred on the subject property. The property has been used historically for grazing of cattle and placement of radio and communication towers.

106.5. Soils

Soils map units are shown on **Figure 8, Soils**. Samples of the top 6-inches of soil was collected at points TP 1 through TP 7, evenly spaced throughout the area to be excavated. These samples were taken to characterize soils in preparation for future soil salvage. The sample locations are shown on **Figure 8**. Analytical sampling results are shown in **Table 2** below.

Table 2: Analytical Results of Fall, 2008 Soil Samples, Top Twelve Inches of Soil*

Soil Parameter	TP#1	TP#2	TP#3	TP#4	TP#5	TP#6	TP#2	Units
Texture	Loam	Sandy Clay Loam	Loam	Clay Loam	Loam	Loam	Loam	Uniform Soil Classification
pH	5.85	6.27	6.16	6.13	6.31	6.30	6.14	@25°C, pH units
EC(conductivity)	540	480	410	350	430	680	390	µmhos/cm
SAR(sodium absorption ratio)	.62	.77	.66	.88	.96	.52	.57	ppm
Percent Organic Matter	7.48	2.00	2.48	1.73	2.18	4.24	2.59	Total Volatile Solids as % of total sample
Total Nitrogen	110.54	26.64	29.58	18.34	26.72	48.92	41.46	ppm
Nitrate Nitrogen	5.9	1.92	2.98	1.47	2.83	3.36	3.20	ppm
Phosphorus (as P)	19.9	10.85	24.92	23.65	8.97	14.88	27.82	ppm
Potassium (as K ₂ O)	179.2	80.00	140.80	147.2	153.6	156.8	217.5	ppm

The texture of all soil samples were consistent from top to bottom. Below this (at about 8 inches) the soil became significantly more gravelly/cobbly and lighter in color. The samples compared closely to the soil description provided by the NRCS for Kilburn very gravelly sandy loam, 30 to 50 percent slopes, eroded as detailed in **Table 3** below.

Table 3: Soil Description for KNG-2, Kilburn very gravelly sandy loam, 30 to 50 percent slopes, eroded

Depth in inches	Texture	Use
0-8	Very gravelly Sandy Loam	Save for topsoil
8-15	Very gravelly Sandy Loam	Use for Product
15-36	Very gravelly Sandy Loam	Use for Product
36-40	Extremely gravelly Sandy Loam	Use for Product

The KNG-2 soils occur between 4,600 to 5,700 feet elevation. Mean annual precipitation is 15 – 19 inches. The soil map unit is generally 90% Kilburn and similar soils. The soil is made up of colluvium and/or slope alluvium derived from granite and quartzite. Soils may have up to 15 percent calcium carbonate. Characteristic vegetation includes Bluebunch wheatgrass 30%, Mountain big sagebrush 25%, Nevada bluegrass 15%, Needleandthread 5%, misc. perennial grasses 5%, misc. perennial forbs, Antelope bitterbrush 5% and misc. shrubs 5%.

106.6. Plans for protecting and re-depositing soils

It is estimated that 115 acres of grading disturbance will occur in the next 5 years. At a 6 inch salvage depth, approximately 92,767 cubic yard of topsoil (see table 1) will be salvaged from this area. Depending on the location of the excavation each year (i.e. south facing or east and west facing slopes), actual soil salvage by year may be more or less than that stated above. All stockpiles will be surrounded by a berm to protect against soil loss.

Topsoil and vegetation (made up mostly of grasses, and brush) will be removed together with bulldozers, front-end loaders, and 14-ton to 45-ton dump trucks. Vegetation at the mine site will add negligible volume to soil stockpiles. Over the life of the grading project, approximately 137 acres of area will be disturbed, and as much as 131,487 cubic yards (CY) of soil will be salvaged for reclamation.

More detail on topsoil stripping and protection is included in Sub-section 109.3 below.

106.7 Existing Vegetative communities to establish re-vegetation success

According to NRCS range data for the Utah County, Utah – Central Part Survey (NRCs 2006), which includes the Study Area (See Figure 8, Soils), vegetation production on the mine acreage ranges from 1,000lb/acre in a favorable year to 400 lb/acre in an unfavorable year. The designated ecological site name is Upland Gravelly Loam (mountain Big Sagebrush).

Potential plant species for the Utah County, Utah – Central Area, based on NRCS data, are shown in Table 4 below

Table 4: NRCS Potential Plant Species for the KNG2 – Kilburn soil map unit

Common Name	Scientific Name
Blue Bunch Wheatgrass	<i>Pseudoroegneria spicata ssp. spicata</i>
Mountain Big Sagebrush	<i>Artemisia tridentate vaseyana</i>
Nevada bluegrass	<i>Poa secunda J. Presl</i>
Antelope Bitterbrush	<i>Pershia tridentata</i>
Needle and Thread	<i>Stipa comate</i>

On June 2, 2009 Ron Kass, Ph.D., a Botanist and Professional Wet Lands Scientist visited the site and conducted a quantitative observation of the plant species growing at that time of year. Those plant species are shown in Table 4a.

Table 4a: Plant Species observed by Ron Kass at the grading site on 6-2-09

Common Name	Scientific Name	Life Form	% Cover
cheatgrass	<i>Bromus tectorum</i>	Grass	22.8
Allyssum	<i>Alyssum alyssoides</i>	Forb	20.8
sagebrush	<i>Artemisia tridentata Big</i>	Shrub	11.6
Western ragweed	<i>Ambrosia psilostachya</i>	Forb	1.4
Litter			5.0
Bare Ground			20.2

A copy of the complete vegetative inventory is attached as Appendix B.

106.8. Depth to Groundwater, Overburden material, and Geologic Setting

Groundwater

No water wells are located within a 1/2 mile radius of the Sage Canyon Mass Grading Project. A copy of the Utah State Division of Water Rights well location map is attached as **Figure 7**, verifying that no recorded water wells exist in the vicinity of the pit.

The elevation of I-15 is at its highest point crossing from Utah County to Salt Lake County is at about 4800 feet. Nowhere along the Point of the Mountain I-15 right-of-way does ground water surface. The base finish elevation of the Sage Canyon Mass Grading Project is about 5,200 feet. This is about 400 feet higher than the highpoint of I-15 Point of the Mountain

crossing. This is a good indicator that no ground water will be encountered in the performance of the mass grading operation.

Overburden Material

Other than the top six inches of material set aside for the reclamation purposes as topsoil, all other material is sold as various aggregate products. No overburden, reject materials, or waste material are produced.

Geology of the area

The Geology underlying the ridges above Tower and Sage Canyons are deep layers of bedrock that are included in the Oquirrh Group, which is of the Pennsylvanian/Permian age. This rock is primarily limestone, interbedded with cherty beds and orthoquartzite layers. Bedrock in the area is highly faulted, fractured, and shattered, as revealed by Geneva's mining activities in the near vicinity.

There is roughly 860 feet of elevation differential between the highest ridge top to be excavated and the base elevation of the development area to the southwest. Even though excellent quality bedrock extends below the planned finish elevations, Geneva does not plan to excavate below the 5200 foot elevation because the master plan of the Traverse Mountain Housing Development has established finish elevations that best accommodate their future development plans.

106.9. Location and sized of ore and wasted stockpiles, tailings and treatment ponds, and discharges

Waste/Overburden Stockpiles

Raw materials consist of rock that has been removed from the hillside. Other than the top six inches of material that is set aside for reclamation purposes as topsoil, all rock material removed from the hillside is used to create aggregate products according to customer specifications. No waste rock is generated.

Material Stockpiles

Most of the bank run material will be removed in its existing state and either hauled by truck down Flight Park Road to the customer or loaded into a feeder or jaw crusher/feeder and conveyed by overland conveyor into Geneva's Point of the Mountain Quarry for further processing. There may be a surge pile of 4" minus material that is stockpiled on site for future

loading. This pile would never exceed 100,000 tons. The location of this stockpile will move as the progress of the excavation moves to the north east.

Tailings

No Tailings will be produced at this excavation.

Water Storage/Treatment Ponds

A storm water retention pond will be constructed near the project entrance that has the capacity to hold the runoff from a 10-year, 24-hour event as shown on **figure 4**. Estimated runoff from areas above and within the planned excavation for a 10-year, 24-hour event is estimated to be 1.4 acre feet. Water for dust suppression is provided by water wells located in the Geneva Rock Point of the Mountain Quarry.

Discharges

All storm water will be contained on site. No process water will be discharged from this site.

R647-4-107. Operation Practices

As required, the relevant Operation Practices stipulated in R647-4-107 will be followed.

R647-4-108. Hole Plugging Requirements

There are no plans for future drilling within the permit area for exploration. If drilling for any reason other than blast hole drilling is planned in the area, Geneva will notify DOGM and the following procedures will be employed.

- Drill holes shall be properly plugged as soon as practical and shall not be left unplugged for more than 30 days without approval by DOGM.
- Dry holes and non-artesian holes that do not produce significant amounts of water may be temporarily plugged with a surface cap to enable Geneva to re-enter the hole for the duration of set operations.
- Surface plugging of drill holes outside the mine area shall be accomplished by setting a nonmetallic permaplug at a minimum of five (5) feet below the surface, or returning the cuttings to the hole and tamping the returned cuttings to within five (5) feet of ground level. The hole above the permaplug or cuttings will be filled with a cement plug. If cemented casing is to be left in place, a concrete surface plug may not be required is a permanent cap is secured on top of the casing.

- Drill holes that encounter water, oil, gas or other potential migratory substances and are 2.5 inches or greater in surface diameter will be plugged in the subsurface to prevent the migration of fluid from one stratum to another. If water is encountered, plugging shall be accomplished as outlined below.
- If artesian flow (i.e. water flowing to the surface from the hole) is encountered during or upon cessation of drilling, a cement plug will be placed to prevent water from flowing between geologic formations and at the surface. The cement mix will consist of API Class A or H cement, with additives as needed, and will weigh at least 13.5 lbs./gal. It will be placed under the supervision of a person qualified in proper drill hole cementing or artesian flow.
- Artesian bore holes will be plugged as described prior to removal of drilling equipment from the well site.
- If the surface owner of the land affected desire to convert an artesian drill hole into a producing and/or monitor well, the landowner will provide written notification to DOGM accepting responsibility for the ultimate plugging of the drill hole.
- Holes that encounter significant amounts of non-artesian water shall be plugged by: 1) placing a 50-ft cement plug immediately above and below the aquifer(s) or filling from the bottom up (through the drill casing) with a high grade bentonite/water slurry mixture. The slurry shall have a Marsh Funnel viscosity of at least 50 seconds per quart prior to the adding of any cuttings.

R647-4-109. Impact Statement

109.1. Surface and ground water systems

Surface Water

No perennial streams or intermittent waters have been or are expected to be impacted by grading operations at the Sage Canyon Mass Grading Project. Any precipitation and/or run-off going into the excavation from sheet flow, which enters the excavation from the hillside above, or, if intercepting access roads to the south, flows down these roads via ditches into the retention pond. A generalized run-off calculation was developed for the area including the area above the active mine that drains into it (refer to correspondence in back of Appendix D) and is summarized below:

Intensity = 1.517 in/hr

Design Event = 10-year, 24-hour (NOAA Atlas 14)

Curve Number – Lehi City Intensity Curve

Soils = C Gravel/Rock

Drainage area = 140 acres

Total volume of run-off = 1.4 acre feet

The retention pond will cover 1.2 acres in surface area and will be about 5' deep. The capacity of the pond will be 6 acre feet, more than enough to contain a 10-year storm.

If erosion or sedimentation is noted on lands where turn-outs are located, Geneva commits to using appropriate water and erosion control measures. This includes, but is not limited to: properly installed dirt berms, small (<0.1 acre-foot) sediment retention sumps, and rock check dams.

Ground water

None of the adjacent mining activities have encountered any groundwater. Absence of any groundwater in the adjacent mining works would indicate groundwater is probably 400 to 500 feet deeper than the deepest excavation on this project. Geneva's excavation activities will have no effect on area ground water.

The major activities on the property that could impact groundwater if residues were to reach this resource are: 1) blasting (will occur up to 50 times per year); 2) presence of diesel fuel, lubricants, etc. used in the heavy equipment used at the mine, and 3) human wastes, which are processed through chemical toilets, which are serviced regularly. In summary:

- Good housekeeping practices and careful operating procedures are used to minimize fuel and lubricant spills. Fuel and lubricants are stored in tanks that have secondary containment that protect against spills.
- Crushing equipment and vehicles are regularly maintained to prevent lubricant leaks and other malfunctions.
- The quantities of blasting materials used create negligible quantities of nitrates that, in the unlikely event that they reached the groundwater, would be well below water quality limits.

109.2. Wildlife habitat and endangered species

The permit area ranges from approximately 6,060 feet in elevation on the north side to 5,200 feet in elevation on the south side. The project is being excavated into sub-ridges of Traverse Mountain, which separates Salt Lake Valley from Utah Valley.

Maps in the Utah Conservation Database (UCD), located at <http://dwrcdc.nr.utah.gov/ucdc/>, indicate the permit area contains year-long habitat for mule deer, prong horn, elk, but no moose.

The UCD website lists seven Threatened or Endangered (T&E) species that are present in Utah County and 35 Species of Special Concern (SPC) that could be found within the boundaries of the Traverse Mountain area, including the Sage Canyon Mass Grading Project. The T&E species are listed below in Table 7, none of the SPC species listed are found with the permit area.

Table 7: Utah County Federal Threatened and Endangered Species

Common Name	Scientific Name	Status*	Habitat present at Sage Canyon
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	T	No – too dry
Deseret Milkvetch	<i>Astragalus desereticus</i>	T	No aquatic species
Clay Phacelia	<i>Phacelia argillacea</i>	E	No-too sandy
Utah Valvata Snail	<i>Valvata utahensis</i>	E Extirpated	No - extirpated
June Sucker	<i>Chasmistes liorus</i>	E	No aquatic species
Yellow-billed "Cuckoo	<i>Coccyzus americanus</i>	C	No-too far north
Brown (Grizzly Bear)	<i>Ursus arctos</i>	T Extirpated	No - extirpated

*T=Threatened, E+ Endangered, SPC = Species of Concern

A well known Utah biologist, Ron Kass was contacted and requested to study the area to see if any T&E or SPC species are found on the permit area. On June 2, 2009 Ron conducted an inventory of the area and found no T&E species or habitat conducive for T& E species. A copy of his letter verifying that inventory is attached in the correspondence section as (Appendix D).

109.3 Existing Soil and Plant Resources

After 5 years of grading, approximately 92,767 CY of soil will be stored from the grading operation for reclamation. A total volume of approximately 110,514 CY of soil will be available for reclamation once the development is fully built out as shown in **Figure 5**.

All topsoil piles will constructed 10 high max. and have 1.5H:1V slopes and a flat to slightly arched top. A 1-foot high X 3-foot wide berm with interior ditch will be constructed around each topsoil stockpile area using material bucked up from the land surface where the topsoil

pile is located. The ditch will catch and retain any soil that sloughs off the stockpile, and the berm will prevent contamination and erosion from storm water.

One topsoil stockpile will be constructed in the grading area during years 1-5. It will be located adjacent to the western boundary of the mass grading project and cover a little over 3 acres at a height of 10' and contain about 40,000 CY. By the end of the 15th year, an additional 2 stockpiles of topsoil will be created near the center of the excavation as shown on **Figure 4** that cover about 2.5 acres each. They will also be constructed 10 feet high and will contain about 35,000 CY each.

Although there should be plenty of topsoil available for reclamation, substitute topsoil material may be developed to augment topsoil resources available. This substitute material would include a mix of natural or crushed fines, small rock, and pit run material; imported manure and/or organic matter (i.e. agricultural field refuse, wood chips, bran or wheat chaff); and fertilizer to enhance fiber breakdown. This material would be stored and spread separately from actual topsoil resources.

The newly stockpiled soil will be seeded in the fall of each year it has been enlarged with a quick-growing cover of grass and legumes in order to minimize erosion. This seed mix, listed in Table 8, will be broadcast at a rate of 14.5 lbs./acre PLS (pure live seed).

Table 8: Seed Mix for Topsoil Stockpiles

Seed Species		PLS* Pounds Per Acre
Scientific Name	Common Name	
<i>Elytrigia intermedia</i>	Intermediate Wheatgrass	2.5
<i>Psuedoroegneria spicata</i>	Bluebunch Wheatgrass	2.5
<i>Achantherum hymenoides</i>	Indian Rice Grass	2.00
<i>Elymus elymoides</i>	Bottlebrush Squirreltail	1.50
<i>Poa sandbergii</i>	Sandberg Bluegrass	1.50
<i>Medicago sativa</i>	Alfalfa	0.75
<i>Agropyron cristatum</i>	Crested Wheatgrass	2.5
<i>Hedysarum boreale</i>	Northern sweetvetch	<u>1.25</u>
Total		14.50
*PLS = pure live seed		

The size of the area stripped in front of the excavation and storage areas will be minimized to limit dust generation and the establishment of noxious weeds. At the same time, the stripped area will be large enough to allow equipment to operate on the stripped lands, and contain within the stripped area all fly-rock that could occur from blasting. Please see subsections 106.5 and 106.6 for more information about topsoil.

All areas disturbed by Geneva (the bonded area) will be reclaimed at the end of mining by regarding (ripping compacted surfaces where necessary), topsoiling, and re-seeding as described in Section 110, with the goal of creating a self-renewing, perennial vegetation cover similar to native conditions.

109.4. Slope stability, Erosion Control, Air Quality, Public Health and Safety

Slope Stability

The rock at the Sage Canyon Mass Grading Project is Orthoquartzite and Limestone of Pennsylvanian/Permian age. During excavation, all active high walls will be maintained at 40-foot high walls set back on a 15 foot batter with 25 foot benches. The overall slope of these benched high walls will be 1H:1V. Geneva inspects all high walls two times per month. A more extensive high wall inspection is conducted yearly with the MSHA inspector.

Please refer to R647-4-110.2, Reclamation Plan – High walls, for further information on slope stability during reclamation.

Erosion Control

There are well defined water channels along existing canyons within the existing disturbance area, or in area planned for future disturbance. However, the soil is so sandy and gravelly that water rarely accumulates sufficiently to form streaming runoff. The hillside being excavated does shed water into the quarry area during precipitation events. Operations will be conducted to control water and erosion in disturbed, bonded areas. A retention pond capable of holding at least 6-acre/feet of water will be created near the quarry entrance to contain any storm water runoff, initially. Rock check dams will be used as needed to slow water down and filter it as it runs off of disturbed ground into the retention pond.

Air Quality

Geneva has an Air Quality permit through the State of Utah, Department of Environmental Quality, Division of Air Quality (DAQ). This permit is described as follows: DAQE-AN0565012-03. Geneva abides by a Fugitive Dust Control Plan acceptable to State of Utah Department of Environmental Quality for control of all dust sources associated with its operations.

Public Health and Safety

Geneva Rock Products will minimize the hazards for public safety and welfare during operations. These measures include:

- No mining shafts or tunnels exist on the site. All fence lines are signed to discourage unauthorized or accidental entry in accordance with MSHA regulations.
- Blasting practices will be conducted in accordance with state and federal rules and in a manner to prevent fly rock outside the property limits and to assure compliance with the dust opacity limitations of the Division of Air quality.
- A gate at the single access road on the south end of the quarry is locked when the site is not operating. The south and east sides of the permit area are fenced to prevent unauthorized entry into the permit area during both operating and non-operating hours.
- Trash, scrap metal and wood, and extraneous debris is disposed of in marked containers that are picked up monthly and disposed of at the Box Elder County Landfill on Little Mountain
- Although none are planned, any exploratory or other drill holes will be plugged and/or capping of as set forth in Rule R647-4-108.
- Appropriate warning signs are located at public access points, and every 300 feet along the south boundary.
- Used lubricating and hydraulic oils are collected in designated tanks and drums and Held for collection by used oil distributors who process it into burner fuels.

R647-4-110. Reclamation Plan

110.1. Current Land Use and Post-Mining Land Use

Current land use of the property at and near the Sage Canyon Mass Grading site is mining and grazing. Geneva's Point of the Mountain Quarry is immediately adjacent to this site. The only uses of the site itself, to date, have been grazing and location for communications towers.

The post-grading land use will be residential development. The operator will reclaim the area to a condition that is capable of supporting this land use. All buildings and structures will be removed, all roads will be reclaimed.

Although this plan addresses grading activities for the next twenty years, additional grading is probable for the next 30 years. Buildings and infrastructure will remain past the twentieth year period until all future grading is completed. However, the current bond amount reflects sufficient funds to have all structures dismantled and removed along with re-grading and reseeding the entire potential disturbed area. If an agency or landowner later requests some of the structures and roads to remain after reclamation of the remainder of the graded area, an

amendment to the NOI and a change to the post-mining land use will be provided to DOGM for approval.

110.2. Reclamation of Roads, High walls, Slopes, Leach Pads, Dumps, Etc.

Roads

Approximately .9 miles of roads will be constructed on the southwest slope of the excavation. All roads will be reclaimed at the end of grading activities. The cost to bring these roads back to a two-track status is included in the surety calculations. Reclamation of roads will include ripping to remove compaction. Roads on flat or gently sloping ground will be graded to blend the road crown and ditches with surroundings. Roads cut into the slopes will be ripped and graded to drain toward the cut side to minimize erosion and encourage vegetation establishment.

Roads will be topsoiled (see Sub-section 110.5 for more information) using scrapers to transport soil and graders to spread soil. All roads will be seeded with the standard seed mix outlined in 110.5

High walls

Mining is proposed to continue for 20 years or more at this site. A drainage ditch on the high side of the high wall will be left intact. High walls will be left at a 57.14% slope or approx. 1.7H:1V or less upon final reclamation. However, during the grading interim Geneva will maintain 40 foot high walls set back 15 feet, and 25 foot benches (see **Figure 6**)

If grading were to cease prior to fully excavating the development plan, those high wall(s) disturbed by Geneva would be left at an overall slope of 1.7H:1V or flatter to assure slope stability. The excavation floor will be graded to drain at a 10 percent or less slope away from the base of the high walls.

No significant areas are available for concurrent reclamation.

Slopes

The lowest point of the excavation floor will be mined down to approximately 5,200 feet elevation. Slopes will be finished and contoured as shown on Figure 4.

All slopes and floors within the disturbed, bonded area that are not part of the high wall will be ripped on the contour to relieve compaction and create a better seed bed (this is discussed further in Sub-section 110.5 below). The excavation floor will be graded to a 10 percent slope, draining away from the highwall area shown on Figures 5 and 5a.

Impoundments, Pits, and Ponds

The graded area will not be backfilled. It will be reclaimed with an overall slope of 1.7H:1V or flatter to assure slope. The floor will be reclaimed with a 10 percent sloped floor which will carry water to a stormwater retention pond in the south west corner, where water will infiltrate into the soil and/or evaporate.

The retention pond will not be backfilled upon reclamation. This will be left to contain storm water runoff from the residential development.

Drainages

Currently water drains from the grading area to the bottom of the canyons and out to Flight Park Road. Within the first 2 years of the grading project and as soon as sufficient room is available a retention pond will be established where Tower Canyon intersects with Flight Park Road to contain any runoff. When the excavation extends over into Sage Canyon a drainage channel will be constructed to direct any flow from Sage Canyon over into the retention pond at the mouth of Tower Canyon.

Dumps, Shafts, Adits, and Leach Pads

There will be no dumps, shafts, adits, or leach pads created during grading operations, thus none of these features will need to be reclaimed.

Drill Holes

No drill holes outside of those required for blasting are anticipated. If any drill holes are required, they will be plugged and sealed as described in R647-4-108 above. There will be no drill holes left open upon reclamation.

110.3. Surface Facilities to be Left

No structures will be left. All facilities will be reclaimed.

A list of structures to be reclaimed is included in the Demolition section of the Surety Calculations located in Appendix F.

All facilities will be demolished after salvaging metals. Concrete will be broken up and buried on site. Other materials will be hauled to a licensed landfill and disposed.

110.4. Treatment, location, and Disposition of Deleterious Material

Potentially hazardous insulation, tile, and non-salvageable debris from demolition will be removed to a licensed landfill. All tanks will either be removed to a licensed landfill upon reclamation or sold. The surety calculations contained in Section 113 assume these items are disposed of at the North Utah County Transfer Station located near the old Geneva Steel Plant in Lindon.

All conveyors, crushers, and other equipment used for excavating and processing of aggregate will be removed upon reclamation or sold. The surety calculations contained in Section 113 assume these items are disposed of at the Western Metals Recycling center in Provo.

110.5. Re-vegetation Planting Program and Topsoil Re-distribution

After final shaping and grading of the excavation floor, slopes, and roads within the disturbed area, surfaces will be ripped and/or scarified on the contour to relieve compaction.

Soil Material Replacement

Topsoil and topsoil substitute material (described under Sub-section 109.3) will be spread on the excavation floor and bench areas using self loading scrapers to place soil, and a grader to spread soil. Topsoil will be spread to a depth of six inches. Marked lath will be used to guide dozer operators to the correct topsoil depth. Topsoil will be placed 6" deep on high wall benches where possible. The steep slopes between the benches will not be covered with topsoil or reseeded.

Seed Bed Preparation

Prior to spreading any topsoil or topdressing, stockpiles will be tested for organic matter, Nitrogen, Phosphorus, and Potassium. If these levels are low, composted manure will be applied to the solid or topsoil substitute after it is spread.

Topsoil will be laid down with a scraper, and if needed, composted manure at 10 ton/acre will be spread. All surfaces will be scarified along the contour with a road grader to assure mixing of the soil and manure to create consistent-textured soil and a roughened surface that will hold the seed and moisture for best germination.

Seed Mixture

Table 10 below provides the seed mixture that will be used in reclamation on all bonded, disturbed areas at the Sage Canyon Mass Grading Project that are 10% or flatter, including highwall benches. Drill and broadcast seeding rates would be the same.

Table 10: Reclamation Seed Mix for the Sage Canyon Mass Grading Project

Common Name	Scientific Name	PLS Pounds/Acre
Crested Wheatgrass	<i>Agropyron cristatum</i>	1.44
Pubescent Wheatgrass	<i>Elytrigia intermedia ssp. trichophorum</i>	1.75
Squirreltail Bottlebrush	<i>Elymus elymoides</i>	0.39
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	1.22
Russian Wildrye	<i>Psathyrostachys juncea</i>	1.05
Alfalfa	<i>Alfalfa</i>	0.44
Small Burnet	<i>Sanguisorba minor</i>	0.28
Forage Kochia	<i>Kochia Prostrata</i>	0.68
Wyoming Big Sagebrush	<i>Artemesia Tridentata Wyomingensis</i>	0.35
Fourwing Saltbush	<i>Atriplex Canescens</i>	1.40
	Total Rate to be Seeded	9.01

Seeding Method

All disturbed areas will be seeded using a range-type drill seeder.

Fertilization

Prior to spreading any topsoil or topdressing, stockpiles will be tested for organic matter, Nitrogen, Phosphorus, and Potassium. If these levels are low, 10 tons of composted manure per acre will be applied to the soil or topsoil substitute after it is spread. Soil amendment quantities will be approved by DOGM prior to application.

Other Re-vegetation Procedures

None.

R647-4-112 Variance

No variances are proposed with this application.

R647-4-113 Surety

The reclamation surety calculations are contained in Appendix F. A summary of the estimated costs of reclamation for the entire project is included below.

1. Demolition and removal of structures	\$17,500.00
2. Backfilling, grading, and contouring	\$310,214.00
3. Revegetation (preparation, seeding, mulching)	\$156,000.00
4. Direct Costs	\$483,714.00
5. Mob/Demob	\$48,371.00
6. Contingency	\$24,186.00
7. Engineering Redesign	\$12,093.00
8. Main office Expense	\$32,893.00
9. Project Management Fee	\$12,093.00
10. Subtotal Indirect Costs	\$129,636.00
11. Escalation	\$14,454.00
12. Reclamation Costs Escalated	\$627,804.00
13. Bond Amount (rounded to nearest \$1,000)	\$628,000.00

References

Natural Resources Conservation Service (NRCS 2008) Web Soil Survey: Eastern Box Elder County Area, Utah. Available online at: <http://websoilsurvey.nrcs.usda.gov/> Accessed Oct. 2008.

Utah Conservation Data Center, 2007. Sensitive Species List by County. Available online at: <Http://dwr cds.nr.utah.gov/ucdc/ViewReports/sscounty.htm> Accessed Oct. 2008.

Utah Division of Water Rights, 2007. Water Right Record Information. Available online at: <http://www.waterrights.utah.gov/wrinfo/query.asp> Accessed October 2008

Appendix A

Photos of Area



Appendix B

Vegetation Study



Appendix C

Soil Sample Results



Appendix D

Correspondence



Appendix E

Other Permits



Appendix F

Surety Calculations

